

Q8 20. (Amended) The method according to Claim 19 wherein at least one of the intensity, pulse duration, and pulse frequency of the radiation is decreased by the processor when the skin impedance decreases below a predetermined value.

REMARKS

The Official Action of October 7, 2002, and the prior art cited and applied therein have been carefully reviewed. The claims in the application remain as claims 1-22, and these claims define patentable subject matter warranting their allowance. Accordingly, the applicant respectfully requests favorable reconsideration and allowance.

Applicant's drawing has been criticized. Attached herewith is an amended Fig. 1 in which an arrow from the block 135 to the block 145 has been introduced and has been labeled "140". Approval and entry are respectfully requested. ✓

The PTO has objected to applicant's specification at page 3, line 15. The paragraph in question has now been corrected above. ✓

Claims 10, 21 and 22 have only been "objected to as being dependent upon a rejected base claim", but have otherwise been indicated as being directed to allowable subject matter. Claim 10 has now been rewritten in

independent form above, and therefore it should now be formally allowable.

Claims 4, 6, 7, 15, 17 and 18 (office action paragraph 5), as well as claims 3 and 14 (office action paragraph 6) have been rejected under the first paragraph of §112. This rejection is respectfully traversed.

Claims 4 and 15, claims 6 and 17, and claims 7 and 18 have been amended above to better define the invention. Similarly, claims 3 and 14 have been clarified to specify that the radiation is "electro-magnetic radiation", support being found at page 4, line 12 of the specification.

Applicant's claims meet both the enablement and description requirements. Applicant respectfully requests withdrawal of the rejections.

Claims 9 and 20 have been rejected under the second paragraph of §112. These rejections are respectfully traversed.

Applicant believes that claims 9 and 20 in their original form would not have been confusing to those skilled in the art, and therefore such claims in their original form are fully in accordance with §112. At worst, these claims in their previous form might be considered objectionable, but only as to form.

Nevertheless, in deference to the Examiner's views and to avoid needless argument, some minor cosmetic amendments have been made in these claims. Such amendments are of a formal nature only, i.e. made to place these claims in better form consistent with the Examiner's idea of what is required under U.S. practice. Such amendments are clearly not "narrowing" amendments because the scope of the claims has not been reduced. No limitations have been added and none are intended; the meaning of these claims remains absolutely the same.

Applicant respectfully requests withdrawal of these rejections.

Some additional amendments have been made in main claim 1. Thus, part (b) of claim 1 has been amended to recite "a surface electrode assembly comprising at least a first pair of a first electrode and a second electrode, the first and second electrodes being configured to be applied to the surface of the skin and to apply a voltage to the skin surface". Support for this amendment may be found in Figs. 1 and 2 where the electrodes 125 are applied to the surface of the skin and are not embedded in the skin.

Claims 1, 2, 4-9, 11-13 and 15-20 have been rejected under §102 as anticipated by Doss USP 4,679,561 (Doss). This rejection is respectfully traversed.

In the present invention, the electrodes 125 are applied to the surface of the skin and are not embedded within the skin. This clearly distinguishes the present invention from Doss in which the electrodes are implanted and not on the surface of the skin. For example, please note the Doss Abstract in which "implanted electrodes" are mentioned, as well as column 3, line 38, which refers to "internally located electrodes", as well as the figures of Doss.

Moreover, and fully consistent with the aforementioned distinction, Doss deals with the treatment of lesions that are deep in the body (i.e. not near the surface of the skin). See col. 1, lines 29-30 ("highly localized heat be produced at depths of several centimeters beneath the surface of the body"), col. 16, lines 30-31 ("tissue deeply imbedded within the body"), and also Fig. 4 which shows that the purpose of the invention is to heat the interior of the body without heating the surface (curve 41 in Fig. 4)). This is completely different from the present invention which is used to treat a visible defect in skin (i.e. a defect at or very near the surface, e.g. unwanted hair, vascular lesions, see page 1, lines 5-8 of the application).

Not in the claims

Because the defect to be treated according to the present invention is located near the surface, and the surface is to be heated, the problem arises of avoiding visible damage to surrounding skin which is not defective. This problem is not in any way considered in the Doss reference which only deals with heating tissues which are not visible on the surface of the body. One would therefore not have been led by the teachings of the Doss reference to the present invention. Accordingly, the present invention is novel over the Doss reference, and applicant's claims define patentable subject matter.

Applicant respectfully requests withdrawal of the rejection.

Claims 3 and 14 have been rejected as obvious under §103 from Doss in view of Hung et al USP 6,391,026 (Hung). This rejection is respectfully traversed.

Doss has been discussed above, and its deficiencies pointed out relative to the present invention. Hung has not been cited to make up for such deficiencies, although the rejection does state (incorrectly) that Hung teaches attaching electrodes to the skin being treated. Respectfully, Hung nowhere mentions "attaching electrodes to the skin", because one of the electrodes is inserted deep into the body through a

no more optical energy. therefore, the rejection is not necessary.

breast duct to a region that is well below the level of the skin, noting column 11, lines 42-44, as well as Fig. 5.

Furthermore, contrary to the Office Action, Hung nowhere suggests using impedance measurements to determine temperature. In col. 7, lines 48-53, to which the rejection refers, Hung merely says that the amount of power delivered to the breast ducts could be controlled based upon the temperature of the ductal lining or the electrical impedance between the electrodes. This does not imply that there is any correlation between skin impedance and skin temperature.

Therefore, even if it were obvious to attempt to combine Doss with Hung, contrary to applicant's position, the present invention would not be reached or achieved. In particular, neither Doss nor Hung teach applying electrodes to the skin surface. Moreover, neither Doss nor Hung teach applying electrodes to the skin surface in order to monitor surface skin temperature.

Withdrawal of the rejection is in order and is respectfully requested.

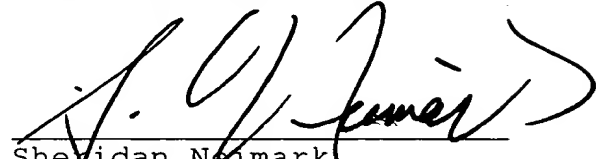
The prior art documents made of record and not relied upon have been noted along with the implication that such documents are deemed by the PTO to be insufficiently pertinent to warrant their applications against any of applicant's claims.

Favorable reconsideration and allowance are
earnestly solicited.

Respectfully submitted,

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Version with Markings to Show Changes Made

IN THE SPECIFICATION

At page 3, first full paragraph after the heading "Detailed Description of Preferred Embodiments", please amend as follows:

--Referring first to Fig. 1, a system is shown for treating skin in accordance with one method of the invention. A defect 100 in skin 105 is irradiated with electro-magnetic radiation 110 produced by a source 115. The irradiation 110 has an intensity determined by a controller 120. The controller 120 contains a voltage source 130 that applies an alternating voltage across a first electrode 125a and second electrode 125b. The second electrode 125b may be a grounded electrode that is not connected to the ~~processor 135~~ controller 120 (not shown). An ammeter 135, also located in the controller 120, continuously measures a current flowing between the electrodes 125a and b. An analog output 140 of the ammeter 135 is sampled by an analog to digital converter 145, and the sample values are input to a processor 150.--

IN THE CLAIMS

1. (Amended) A system for treating skin, comprising:

(a) a surface ~~a source of radiation assembly~~ configured to irradiate a region on the surface of the skin;

(b) a surface electrode assembly comprising at least a first pair of a first electrode and a second electrode, the first and second electrodes being configured to ~~apply be~~ applied to the surface of the skin and to apply a voltage to the skin surface;

(c) an electrical meter configured to measure an electrical response of the skin to a voltage applied across the electrodes;

(d) a processor configured to adjust value of a parameter of the radiation based upon a measured electrical response to a voltage applied across the first and second electrodes.

3. (Amended) The system according to Claim 1 wherein the ~~source of radiation is~~ electro-magnetic radiation. ~~optical energy.~~

112 Anticancer source not in claim 1
4. (Amended) The system according to Claim 1 wherein the source of radiation is a ~~third electrode and a fourth electrode configured to apply a voltage~~ applied to the skin.

does not limit Claim 1

6. (Amended) The system of Claim 4 wherein the voltage applied to the skin ~~by the third and fourth electrodes~~ is in the radio frequency.

7. (Amended) The system according to Claim 4 wherein the first and second electrodes are the same as the ~~third and fourth electrodes~~ source of the radiation.

9. (Amended) The system according to Claim 8 wherein at least one of the intensity, pulse duration, and/or pulse frequency of the radiation is decreased by the processor when the skin impedance decreases below a predetermined value.

10. (Amended) A system for treating skin, comprising:

(a) a surface radiation assembly configured to irradiate a region on the surface of the skin;

(b) a surface electrode assembly comprising at least a first pair of a first electrode and a second electrode, the first and second electrodes being configured to be applied to the surface of the skin and to apply a voltage to the skin surface;

(c) an electrical meter configured to measure an electrical response of the skin to a voltage applied across the electrodes, wherein the electrical response of the skin is skin impedance or skin conductivity;

(d) a processor configured to adjust value of a parameter of the radiation based upon a measured electrical

response to a voltage applied across the first and second electrodes, and wherein the electrical response of the skin is
skin impotence or skin conductivity. ~~The system according to Claim 8 wherein the processor is further configured to store in a memory a table assigning value of one or more parameters of the irradiation to each of one or more non-overlapping impedance ranges, and the value of a parameter of the radiation is adjusted to a value assigned by the table to an impedance measurement.~~

14. (Amended) The method according to Claim 12, wherein the ~~source of radiation is~~ electro-magnetic radiation~~optical energy.~~

15. (Amended) The method according to Claim 12 wherein the source of radiation is a ~~third electrode and a fourth electrode configured to apply a voltage~~ applied to the skin.

17. (Amended) The method of Claim 15 wherein the voltage applied to the skin ~~by the third and fourth electrodes~~ is in the radio frequency range.

18. (Amended) The method according to Claim 15 wherein the first and second electrodes are the same as the ~~third and fourth electrodes~~ source of the radiation.

19. (Amended) The method according to Claim ~~10~~12 wherein the electrical response of the skin is a skin impedance.

20. (Amended) The method according to Claim 19 wherein at least one of the intensity, pulse duration, and/or pulse frequency of the radiation is decreased by the processor when the skin impedance decreases below a predetermined value.

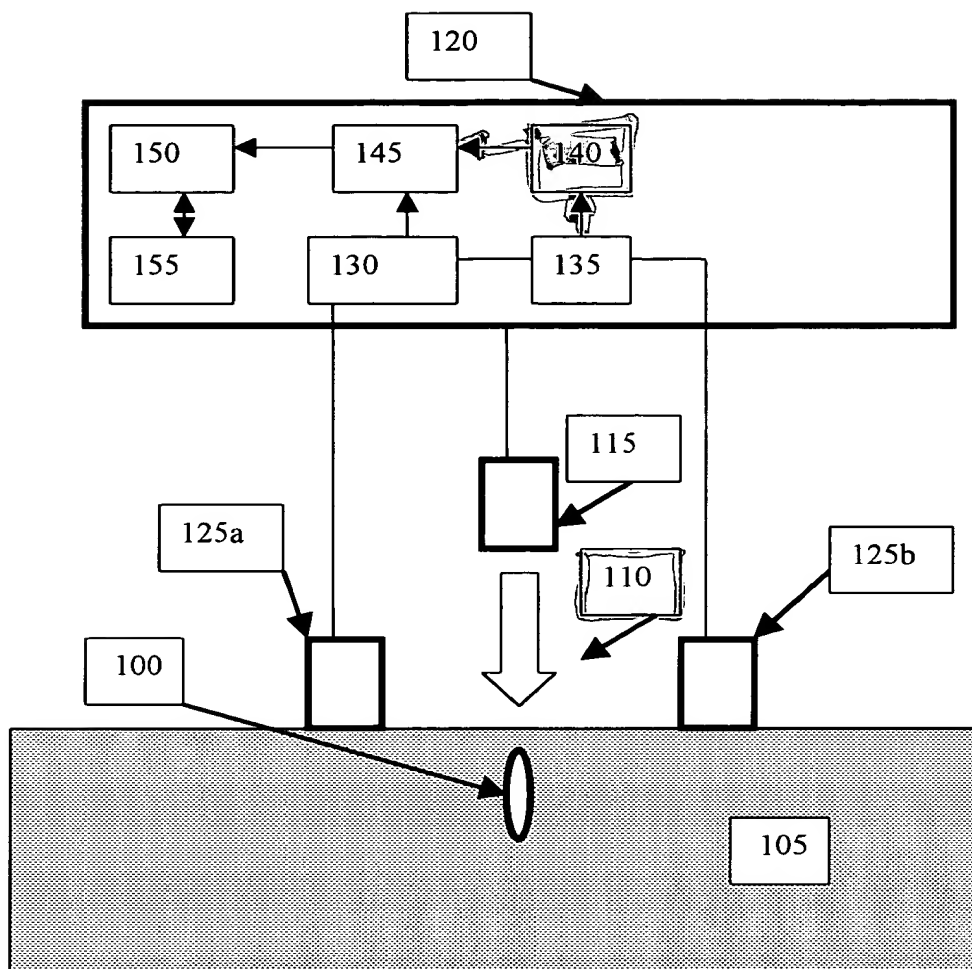


Fig. 1